

Discuss how human activities can affect a biome you have studied.

(80 marks)

Marking Scheme:

Number of aspects discussed:	3 @ 20 marks each	4 @ 15 marks each
<u>For each aspect:</u>		
Identifying aspect	4 marks	3 marks
Discussion	8 x SRPs	6 x SRPs

Overall Coherence 20 marks graded* 20 marks graded*

In this answer, I choose 3 aspects to discuss (Urbanisation, Irrigation schemes and Deforestation). Overall coherence means how well your answer is structured (Introduction, main section, conclusion – well-structured and coherent) and do you keep to the point/ answer the question directly.

Introduction:

A biome is an entire eco-system specific to one particular region of the globe, that is, all the flora and fauna are unique to it, due to the climate and soil types. There are nine biomes around the world with the desert biome being the least productive in terms of vegetation. This fact can be influenced with massive irrigation schemes, as is the case with the Sacramento irrigation scheme of California. The influence of humans has left an indelible mark on the North American Desert Biome. There have been THREE important influences on the North American Desert Biome: Urbanisation, Irrigation schemes and Deforestation

Body of Topic:

Firstly, Urbanisation has halted the spread of the Desert. After the American ‘dust bowl’ of the 1930s (the Great Depression), thousands of mid-Westerners migrated westwards towards California, Utah, Arizona, New Mexico and Colorado. This led to massive urbanisation and the creation of huge and sprawling cities with suburbs spreading into the desert, especially during the post-WW2 period, such as Los Angeles and Sacramento (California), Denver (Colorado), Phoenix and Tucson (Arizona) and El Paso (New Mexico). As a result, the North American Desert Biome is slowly being encroached upon by these new cities. This has resulted in natural habitats being destroyed. However the aridity of the Desert region has been reduced, as human consumption requires extensive farmland to feed its population and in addition to this, water sources need to be found or water has to be brought. Thus the massive ‘New Deal Programme’ of the Roosevelt Administration of the 1930s resulted in harnessing water from Utah’s and Wyoming’s lakes to provide water for the new cities (the Hoover dam now holds back the largest man-made lake in the world, lake Mead, named after

Elwood Mead who oversaw the project, which provides water for the residents of Las Vegas, in the Mojave desert). The North American Desert Biome region, therefore, is the fastest growing region in North America demographically. The population of Arizona has increased by over 25% from 1991 – 2001 whilst Colorado's population has increase by over 40% during the same period. This huge increase has had a dramatic affect on the topography of the desert area as a result. The rapid population increase however has been even more dramatic for the State of California with its population rising from 1.5 million in 1900 to its present population of 39.5 million (2018) making it the world's sixth largest economy in the world. It has been this dramatic increase in human population in California that has resulted in dramatic encroachment into the North American Desert Biome.

This leads to the second influence of Man, that being the creation of Irrigation schemes to promote agriculture. California is the largest producer of agricultural produce in the U.S. (Imperial Valley) with 10% of its workforce employed in agriculture. Huge tracts of land have been taken from the desert and converted into fertile land conducive to vine and citrus fruit growth. Water is piped from Northern California, which has a Cool Temperate Maritime/Oceanic climate type, to Central and Southern California. However, with the overuse of irrigation there has been a drop in levels of ground water and salinisation has increased in California and Arizona resulting in further usage of more water. In addition to this, run-off from the irrigated land carries with it dissolved pesticides and fertilizers which has led to a growth in algae. The only solution seems to be a vicious cycle of over-use of water or fertilizers. Overall, however, by halting the Desert, South California, which has a Warm Temperate Maritime/Oceanic climate (ie. very hot and dry in summer), can and has emulated the success of Mediterranean Europe with the type of crops grown. The San Joachin Valley in particular has become the home of California's wine industry. This particular valley, north of L.A. and south of San Francisco is the home of California's wine industry. Cattle-grazing has increased fivefold since the Gold Rush of the 1860s onwards. Sheep have also been introduced into the slopes of Southern California causing huge ecological damage. New varieties of fast-growing grasses were introduced in the 1890s which have taken the place of many native grasses. Tumbleweed has now replaced these grasses especially, in addition to the African grasses, in the Sonora Desert.

Finally, The deforestation of California commenced from the 1860s with the Gold Rush. As wood was plentiful, lumber was the first major industry in the State from the mid-1860s. Permanent sawmills were established with the main demand for timber in mines as pit props. Mining communities soon spread throughout all of California. With the arrival of the railways in the 1860s-1870s, cities and towns began to prosper, but in rural areas where the forests once resided were now scant in numbers and the trees were replaced with grassland and scrub woodland. These areas affected are right on the boundary line with the NADB. Today over 96% of California's Redwoods have been removed due to commercial logging. This valuable wood was later used for the massive post-war boom in suburban housing. This development of deforestation has resulted in over 500 sq. kms of forests being destroyed.

Most the the remaining Redwood forests are now in state ownership where logging has been prohibited (eg. Headwater forest).

Conclusion:

Therefore, human activities in the desert biome have dramatically affected/ influenced the North American Desert Biome.

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